

Algebra I

Notes & Homework Assignments

For

September 15, 2008 thru September 19, 2008

Days of the Week	Homework	Due Date
Monday Evaluating Expressions <i>Lesson 1-1 & 1-6</i>	Evaluating Variable Expressions (1-24) multiples of 3	Tuesday (9-16-2008)
Tuesday Evaluating Expressions <i>Lesson 1-1 & 1-6</i>	Evaluating Expressions (1 – 14) even	Wednesday (9-17-2008)
Wednesday Combining Like Terms focusing of Real Properties <i>Lesson 1-7</i>	Using the Distributive Property (1 – 24) odd	Thursday (9-18-2008)
Thursday Combining Like Terms <i>Lesson 1-7</i>	Combining Like Terms (1 – 30) multiples of 3	Friday (9-19-2008)
Friday Combining Like Terms <i>Lesson 1-7</i>	Adding and Subtracting Polynomials (1 – 30) multiples of 3	Monday (9-22-2008)



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Title: _____

Name: _____

Class: _____

Date: Monday 9-15-08

QUESTIONS/SUMMARIES

NOTES:

Summary/Reflection:

Title: _____

Name: _____

Class: _____

Date: _____

QUESTIONS/SUMMARIES

NOTES:

Summary/Reflection:

Evaluating Variable Expressions

Monday, Date 9-15-08 Period _____

Evaluate each using the values given.

1) $n^2 - m$; use $m = 7$, and $n = 8$

2) $8(x - y)$; use $x = 5$, and $y = 2$

3) $yx \div 2$; use $x = 7$, and $y = 2$

4) $m - n \div 4$; use $m = 5$, and $n = 8$

5) $x - y + 6$; use $x = 6$, and $y = 1$

6) $z + x^3$; use $x = 1$, and $z = 19$

7) $y + yx$; use $x = 15$, and $y = 8$

8) $q \div 6 + p$; use $p = 10$, and $q = 12$

9) $x + 8 - y$; use $x = 20$, and $y = 17$

10) $15 - (m + p)$; use $m = 3$, and $p = 10$

11) $10 - x + y \div 2$; use $x = 5$, and $y = 2$

12) $p - 2 + qp$; use $p = 7$, and $q = 4$

13) $zy + 4y$; use $y = 5$, and $z = 2$

14) $b(a + b) + a$; use $a = 9$, and $b = 4$

15) $p^2 \div 4 - m$; use $m = 3$, and $p = 4$

16) $x(y \div 3)^2$; use $x = 4$, and $y = 9$

17) $4 + m + n - m$; use $m = 4$, and $n = 9$

18) $qp + q - p$; use $p = 7$, and $q = 3$

19) $mn \div 6 + 10$; use $m = 7$, and $n = 6$

20) $h + j(j - h)$; use $h = 2$, and $j = 6$

21) $(b - 1)^2 + a^2$; use $a = 6$, and $b = 1$

22) $y(x - (9 - 4y))$; use $x = 4$, and $y = 2$

23) $x - \left(x - \left(x - y^3 \right) \right)$; use $x = 9$, and $y = 1$

24) $j(h - 9)^3 + 2$; use $h = 9$, and $j = 8$

Name: _____ Period: _____

Evaluating Expressions

Tuesday, 9-16-08

Simplify each of the following using the variable values given.

$a = 3$

$b = -2$

$c = 4$

$d = -5$

$e = 6$

1. $ab + de$

2. $a + d^2$

3. $3b - 2c$

4. $c(a + b)$

5. $(b + d)^2$

6. cda

Simplify each of the following using the variable values given.

$f = 2.1$

$g = -1.9$

$h = 6.7$

7. $f^2 + g^2$

8. $g \div f * g$

9. $-6h + f$

Solve the following for r, using the variable values given.

$s = 9$

$t = -11$

$v = 4$

10. $3s + r = v$

11. $(t - v)r = sv$

12. $r - s = t$

13. James came up with a formula to figure out his company's cost for ordering equipment.

$$C = (3p + 6.7s)(1 - 0.1d)$$

where p is the number of reams of paper they need, s is the number of shredders they need and d is the discount level he has with the company. If James sends in an order for 12 reams of paper, 3 shredders and has a discount level of 2, what is the cost?

14. The formula for surface area of a cylinder is $S = 2\pi r^2 + 2\pi rh$, where π is 3.14, r is the radius and h is the height of the cylinder. If a cylinder has a height of 5 in and a radius of 12 in, what is the surface area?

Evaluating Expressions

Extra Credit opportunity

Date _____

Period _____

Evaluate each using the values given.

Show work on notebook paper.

- 1) $y \div 2 + x$; use $x = 1$, and $y = 2$
- 2) $a - 5 - b$; use $a = 10$, and $b = 4$
- 3) $p^2 + m$; use $m = 1$, and $p = 5$
- 4) $y + 9 - x$; use $x = 1$, and $y = 3$
- 5) $m + p \div 5$; use $m = 1$, and $p = 5$
- 6) $y^2 - x$; use $x = 7$, and $y = 7$
- 7) $z(x + y)$; use $x = 6$, $y = 8$, and $z = 6$
- 8) $x + y + y$; use $x = 9$, and $y = 10$
- 9) $p^3 + 10 + m$; use $m = 9$, and $p = 3$
- 10) $6q + m - m$; use $m = 8$, and $q = 3$
- 11) $p^2m \div 4$; use $m = 4$, and $p = 7$
- 12) $y - (z + z^2)$; use $y = 10$, and $z = 2$
- 13) $z - (y \div 3 - 1)$; use $y = 3$, and $z = 7$
- 14) $(y + x) \div 2 + x$; use $x = 1$, and $y = 1$
- 15) $p - (9 - (m + q))$; use $m = 4$, $p = 5$, and $q = 3$
- 16) $(a^2 - b) \div 6$; use $a = 5$, and $b = 1$
- 17) $2(p + 4) - (m + n)$; use $m = 4$, $n = 2$, and $p = 5$
- 18) $y - (4 - x - y \div 2)$; use $x = 3$, and $y = 2$
- 19) $x^3 \div 3 - y$; use $x = 3$, and $y = 1$
- 20) $pn + (n + m)^2$; use $m = 1$, $n = 4$, and $p = 6$
- 21) $12k - h^2$; use $h = 2$, and $k = 3$
- 22) $p + m + n + m^2$; use $m = 4$, $n = 5$, and $p = 5$
- 23) $2 + r - (5 - q) + p$; use $p = 2$, $q = 2$, and $r = 5$
- 24) $y - z + xz \div 6$; use $x = 3$, $y = 4$, and $z = 4$
- 25) $\frac{y}{2} + x + 4 + z + y$; use $x = 7$, $y = 2$, and $z = 4$
- 26) $c \times \frac{bc}{4} - (7 - a)$; use $a = 4$, $b = 8$, and $c = 5$

Wednesday
9-17-08

Name _____ #: _____ Date _____ Period _____
In class

There are 4 properties that we will use:

Commutative Property	$A + B = B + A$ $A \bullet B = B \bullet A$
Associative Property	$(A + B) + C = A + (B + C)$ $(A \bullet B) \bullet C = A \bullet (B \bullet C)$
Distributive Property	$A(B + C) = A \bullet B + A \bullet C$ $A(B - C) = A \bullet B - A \bullet C$
Identity Property	$A + 0 = A$ $A \bullet 1 = A$

Name the property illustrated.

1. $7x + 8y = 8y + 7x$

2. $r(3 + 4t) = 3r + 4rt$

3. $(6x + 9) + 7y = 6x + (9 + 7y)$

4. $7(3 \bullet 5) = (7 \bullet 3) 5$

5. $6x + (2y + 5z) = (2y + 5z) + 6x$

6. $(5 \bullet 3a) \bullet 2b = (3a \bullet 5) \bullet 2b$

7. $(a + 4) 15 = 15a + 60$

8. $(6 + 4) + 2 = 6 + (4 + 2)$

9. $7 + 6 = 6 + 7$

10. $7(ab) = (7a)b$

11. $10x + 10y = 10(x + y)$

12. $(5x^2 + x) - 3 = (x + 5x^2) - 3$

13. $4(a - 5b) = 4a - 20b$

14. $3(5 + c) = (5 + c) 3$

15. $7x + (\frac{1}{2}y + z) = (7x + \frac{1}{2}y) + z$

16. $9(1) = 9$

17. $5 + 0 = 5$

18. $y = y + 0$

19. $(2xy)(1) = 2xy$

20. $4(n - 3) = 4n - 12$

In class

LESSON

Reteach

1-7

Simplifying Expressions

The following properties make it easier to do mental math.

Property	Addition	Multiplication
Commutative Property	$3 + 4 = 4 + 3$	$2 \cdot 5 = 5 \cdot 2$
Associative Property	$(3 + 4) + 5 = 3 + (4 + 5)$	$(2 \cdot 4) \cdot 10 = 2 \cdot (4 \cdot 10)$
Distributive Property	$2(5 + 9) = 2(5) + 2(9)$	

Simplify $14 + 37 + 6$.

$14 + 37 + 6$ *Identify compatible numbers.*

$37 + 14 + 6$ *Use the Commutative Property to rearrange the numbers.*

$37 + (14 + 6)$ *Use the Associative Property to group the compatible numbers.*

$37 + 20$ *Add.*

57

Simplify $5(24)$.

$5(24)$

$5(20 + 4)$ *"Break apart" 24 into numbers compatible with 5.*

$5(20) + 5(4)$ *Distribute 5.*

$100 + 20$ *Multiply.*

120 *Add.*

Use the properties above to simplify each expression.

1. $7 + 36 + 3$

2. $13.2 + 15 + 5 + 1.8$

3. $4 \cdot 9 \cdot 5$

4. $6(32)$

5. $23 \cdot \frac{1}{2} \cdot 200$

6. $4(88)$

LESSON
1-7
Reading Strategies
Focus on Vocabulary

The Commutative, Associative, and Distributive Properties are used to simplify expressions and combine like terms. By connecting each property with a vocabulary word that has the same root, you will better understand how to use each property.

Commutative Property —————→ think “**commute**”: to travel back and forth

Ex: $7 \cdot 5 = 5 \cdot 7$ —————→ changing the order is okay for + and \times

Associative Property —————→ think “**associate**”: to be in a group with

Ex: $(9 + 8) + 2 = 9 + (8 + 2)$ —→ changing the grouping is okay for + and \times

Distributive Property —————→ think “**distribute**”: to spread out to all

Ex: $2(8 + 3) = 2 \cdot 8 + 2 \cdot 3$ —→ the lead number is multiplied by all in ()

Answer each problem.

1. Give an example of the Commutative Property for addition.

2. Write a non-mathematical sentence using the word “distribute.”

An expression is simplified below. Justify each step of the process by naming the property that was used or by writing “combine like terms.”

$$27 + 3(2x + 6) + 2x$$

$$27 + 6x + 18 + 2x$$

3. _____

$$27 + 18 + 6x + 2x$$

4. _____

$$(27 + 18) + (6x + 2x)$$

5. _____

$$45 + (6x + 2x)$$

6. _____

$$45 + 8x$$

7. _____

Use the properties above to simplify each expression.

8. $8 \cdot 3 \cdot 5$

9. $7(3 + x) + 6$

10. $12x + 4(8x + 2) + 8x$

Title: _____

Name: _____

Class: _____

Date: _____

QUESTIONS/SUMMARIES

NOTES:

Summary/Reflection:

Using the Distributive Property

Wednesday, Date 9-17-08 Period _____**Simplify each expression.**

1) $-6(a + 8)$

2) $4(1 + 9x)$

3) $6(-5n + 7)$

4) $(9m + 10) \cdot 2$

5) $(-4 - 3n) \cdot -8$

6) $8(-b - 4)$

7) $(1 - 7n) \cdot 5$

8) $-6(x + 4)$

9) $5(3m - 6)$

10) $(-6p + 7) \cdot -4$

11) $5(b - 1)$

12) $(x + 9) \cdot 5$

13) $-4(-8x - 8)$

14) $-6(7 + x)$

15) $-3(x - 5)$

16) $-5(10x + 1)$

17) $(1 + 2v) \cdot 5$

18) $-8(1 - 5x)$

19) $-7(5k - 4)$

20) $-5(7a - 6)$

21) $5(n + 6)$

22) $4(3r - 8)$

23) $3(5 + 5x)$

24) $(1 + 9x) \cdot -10$

*In class
Thursday*

LESSON
14-2 **Reading Strategies**
Understand Vocabulary

Like terms in a polynomial have the same variables raised to the same powers. After identifying like terms, you can combine them to simplify the polynomial.

Identifying Like Terms	Simplifying Polynomials by Combining Like Terms
$7b + 4b^2 + 5 + 3b - b^2$ $7b$ and $3b$ are like terms. $4b^2$ and $-b^2$ are like terms.	Add or subtract the coefficients of like terms. Add the coefficients, 7 and 3, and keep the variable the same. $7b + 3b = 10b$ Subtract the coefficients, 4 and -1 , and keep the variable the same. $4b^2 - b^2 = 3b^2$ $7b + 4b^2 + 5 + 3b - b^2 = 10b + 3b^2 + 5$

Answer each question.

1. Explain why $4b^2$ and $-b^2$ are like terms.

2. Explain why $4x^3y^2$ and $15x^2y^2$ are not like terms.

3. Describe a monomial that would be a like term for $10xy$. Then give an example.

4. Identify the coefficient of each term in the polynomial $3c - 2c^2 + 10$.

5. When you combine like terms, what do you do to the coefficients, and to the variables, and to the exponents of the terms?

6. In the polynomial $7x^3 - 4x^2 + x + 6$, what is the coefficient of x ?

Name _____

Date

9.18.08

Class _____

In Class
Thursday

LESSON

Reading Strategies**14-3****Follow a Procedure**

There are two ways to add polynomials.

Adding Polynomials Horizontally	Adding Polynomials Vertically
Step 1: The Associative Property of Addition allows you to regroup the terms. Step 2: Identify like terms. Step 3: Combine like terms by adding their coefficients. $(7x^3 + 5x^2 - 8) + (6x^2 + 20)$ $7x^3 + 5x^2 - 8 + 6x^2 + 20$ $7x^3 + \boxed{5x^2} - \boxed{8} + \boxed{6x^2} + \boxed{20}$ $7x^3 + 11x^2 + 12$	Step 1: Identify like terms. Step 2: Place like terms in columns. If you rearrange terms, remember to keep the correct sign with each term. Step 3: Combine like terms by adding their coefficients. $(2h^2 + 9h^3 + 7) + (11h - 4h^3 - 3h^2)$ $\begin{array}{r} 9h^3 + 2h^2 \qquad + 7 \\ -4h^3 - 3h^2 + 11h \\ \hline 5h^3 - h^2 + 11h + 7 \end{array}$

Use the information in the chart to answer the following questions.

1. What property allows you to regroup terms in an addition problem?

2. How do you combine like terms?

3. What happens to a term that has no like terms with which to combine it?

4. What are the first steps when adding polynomials vertically?

5. How would you rearrange $7 - 4x^2 - 6x + 5x^3$ so that you can vertically add it to $10x^3 + 3x^2 - 9x + 1$?

6. When placing like terms in columns to add polynomials vertically, when do you skip spaces?

Name _____ Date 9.18.08 Class _____

TEKS 8.2.B



LESSON

14-2

Practice

Simplifying Polynomials

In class
Thursday

Identify the like terms in each polynomial.

1. $x^2 - 8x + 3x^2 + 6x - 1$

2. $2c^2 + d^3 + 3d^3 - 2c^2 + 6$

3. $2x^2 - 2xy - 2y^2 + 3xy + 3x^2$

4. $2 - 9x + x^2 - 3 + x$

5. $xy - 5x + y - x + 10y - 3y^2$

6. $6p + 2p^2 + pq + 2q^3 - 2p$

7. $3a + 2b + a^2 - 5b + 7a$

8. $10m - 3m^2 + 9m^2 - 3m - m^3$

Simplify.

9. $2h - 9hk + 6h - 6k$

10. $9(x^2 + 2xy - y^2) - 2(x^2 + xy)$

11. $7qr - q^2r^3 + 2q^2r^3 - 6qr$

12. $8v^4 + 3v^2 + 2v^2 - 16$

13. $3(x + 2y) + 2(2x - 3y)$

14. $7(1 - x) + 3x^2y + 7x - 7$

15. $6(9y + 1) + 8(2 - 3y)$

16. $a^2b - a^2 + ab^2 - 3a^2b + ab$

17. A student in Tracey's class created the following expression:
 $y^3 - 3y + 4(y^2 - y^3)$. Use the Distributive Property to write
an equivalent expression.

Combining Like Terms

Date 9.18.08 Period _____
Thursday

Simplify each expression.

1) $-6k + 7k$

2) $12r - 8 - 12$

3) $n - 10 + 9n - 3$

4) $-4x - 10x$

5) $-r - 10r$

6) $-2x + 11 + 6x$

7) $11r - 12r$

8) $-v + 12v$

9) $-8x - 11x$

10) $4p + 2p$

11) $5n + 11n$

12) $n + 4 - 9 - 5n$

13) $12r + 5 + 3r - 5$

14) $-5 + 9n + 6$

15) $n - 4 - 9$

16) $4n - n$

17) $-3x - 9 + 15x$

18) $-9k + 8k$

19) $-16n - 14n$

20) $15n - 19n$

21) $-4 + 7(1 - 3m)$

22) $-5n + 3(6 + 7n)$

23) $-2n - (9 - 10n)$

24) $10 - 5(9n - 9)$

25) $9a + 10(6a - 1)$

26) $-9(6m - 3) + 6(1 + 4m)$

27) $-10(1 - 9x) + 6(x - 10)$

28) $5(-2n + 4) + 2(n + 3)$

29) $-3(10b + 10) + 5(b + 2)$

30) $-7(n + 3) - 8(1 + 8n)$

Friday
In class

LESSON
Reteach
14-2 Simplifying Polynomials

You can simplify a polynomial by combining like terms. Like terms have the same variables raised to the same powers. All constants are like terms.

$$9 + 6y^3 - 8 + 7x^2y^3 + 3x^2y^3$$

\swarrow \nearrow \swarrow \nearrow
 like terms like terms

$7x^2y^3$ and $3x^2y^3$ both have the variable x raised to the 2nd power and the variable y raised to the 3rd power. Therefore, they are like terms.

Identify the like terms in each polynomial

1. $m + 3m^2 - 2m + 6 + 2m^2$

2. $b - a^2b^2 - 2 + a^2 + 2a^2b^2$

3. $x^3 + 2 + 4x^3 - 9 + x$

4. $9 + 4dg^2 + 4 + 6dg^2 + d^2$

To simplify a polynomial, combine like terms. To combine like terms, add or subtract the coefficients. The variables and the exponents

do not change.

$$(7x^2y^3) - 6y^3 + (3x^2y^3)$$

$$7x^2y^3 + 6y^3 + 3x^2y^3$$

$$10x^2y^3 + 6y^3$$

$$\uparrow$$

$$7 + 3 = 10$$

Identify like terms.

Combine coefficients of like terms.

Simplify.

5. $8a + 3ab^2 + 3a + 2ab^2$

6. $x^3 + 1 + 2x^3 + 3xy^2 - 3$

7. $y^4 + 2x^2y^3 - 3x^2 + 2y^4$
